

Simon Kwong

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EDUCATION

University of California Santa Cruz

Santa Cruz, CA

Bachelor of Science in Computer Science

Aug. 2020 – June 2024

Relevant Coursework: Computational Models, Computer Architecture, Probability and Statistics for Engineers, Analysis of Algorithms, Data Analysis and Empirical Methods, Principles of Computer System Designs, Artificial Intelligence, Database Systems, Fullstack Web Development

EXPERIENCE

Tutor

January 2023 – June 2024

University of California Santa Cruz

Santa Cruz, CA

- Helped students develop an understanding of basic data structures and algorithms
- Taught students how to debug code and write unit tests

Grader

January 2023 – June 2024

University of California Santa Cruz

Santa Cruz, CA

- Assisted in grading programming assignments and exams of a large scale class of upwards of 400 students
- Assisted in proctoring exams of large scales classes

PROJECTS

UCSC-Amazon | *Node, Express, React, Postgres*

April 2024 – June 2024

- Developed an e-Commerce site inspired by Amazon with 5 other people.
- Created and integrated RESTful APIs and GraphQL for seamless communication between the frontend and backend systems
- Developed and maintained server-side logic with Node and integrated with PostgreSQL
- Implemented secure payment processing using Stripe to facilitate online transactions.

Slack Clone | *Node, Express, React, Postgres*

March 2024 – April 2024

- Real time messaging platform built with a React frontend and Express backend.
- Multi-channel communication system with PostgreSQL database supporting workspace management, channel management, and file upload

Multithreaded HTTP Server | *C, HTTP Requests*

May 2023 – June 2023

- Built multithreaded HTTP server in C utilizing thread-safe data structures to handle concurrent client requests.
- Implemented thread synchronization and mutual exclusion for safe concurrent access to shared resources
- Designed custom queue data structure with mutexes for thread-safe request processing

Huffman Coding | *C*

January 2022 – March 2022

- Built an implementation of Huffman Coding file compression system in C.
- Able to encode/decode input from stdin & files and output to stdout or an output file.

Schmidt-Samoa Cryptosystem | *Python*

January 2025

- Built an implementation of the Schmidt-Samoa Cryptosystem with encryption, decryption, and key generation functionality in Python.
- Generated large pseudorandom prime numbers for public and private keys by checking with the Miller-Rabin primality test
- Built encryption/decryption functions utilizing number-theoretic operations for message security.

Bouncing Ball Simulation | *Go*

May 2025

- A physics based simulation built with SDL3 in Golang implementing realistic ball dynamics including gravity, velocity calculations, collision detection with boundaries, and energy loss.

TECHNICAL SKILLS

Languages: Python, C/C++, SQL (Postgres), JavaScript/Typescript, HTML/CSS, Go

Frameworks: Node.js, React, Express, NextJS, Shadcn, TailwindCSS

Developer Tools: Git, Docker, Postman, Vim, Bash, Unix